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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,049	02/14/2002	Janez Pirs	5599	6149

6858 7590 11/02/2005

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EXAMINER	
PADGETT, MARIANNE L	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,049	PIRS ET AL.	
	Examiner	Art Unit	
	Marianne L. Padgett	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1). Applicants' amendment of 8/12/2005 corrects 112 2nd problems concerning abbreviations & relative terms have been corrected, noting the cited support for soft spacers = deformable spacers on p.9 & 11, plus fig.2. The dictionary citation of hard = not soft, combined with the teachings on p.12 & fig.3 of the specification, is considered to provide sufficient support for hard spacers = non-deformable spacers, and file wrapper estopple for the meanings thereof.

It is also noted that "unrestrained" is defined with respect to shrinkage on p.8, lines (typed) 19-23 of the specification, indicating its meaning may be taken literally "or that the mechanical strains in the direction perpendicular to the surface plane, are significantly reduced in comparison with the strains in the plane", which broadens from the literal meaning.

The term "cross-polymerization" found in the amended claims & p.14 or 15, etc., of the specification is not a standard scientific term, however from context the examiner assumes that it is equivalent to "cross-linking" & will be treated consistent with that meaning.

2). Claims 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the independent claims 16, 20 & 21, It is unclear how "over" is intended to modify the alternatives of (1) (b) or (1)(c), i.e. what is "over between" supposed to mean? Note in canceled claim 16, "over" was only associated with (1)(a).

In claim 16, "(2) polymerizing..." as written it is unclear how much of the claim language only applies to option (c) & how much to (a) & (b) also. Especially ambiguous is the phrase "so that the material layer unrestrainably shrinks...surfaces". While the examiner guesses that applicants probably want it to apply to (a), (b) or (c), the phrasing does not necessitate it. Limitations after that appear to apply to all options, as do the 1st 3 lines + 1 word of (2). It appears most likely that "with (c)...at said elevated temperature" (in 5th -11th lines of (2)) all go with option (c).

In claim 16, the 16th line of (2), "deformation of macromolecules forming the monomer" is confusing, since monomers, which are the units making up polymers, are not generally considered to be macromolecules *per se*. Read in-light of the specification, it does not appear that applicants phrased this consistent with their probable intent, since p.10, 2nd full paragraph discloses "deformation...of molecules of the polymer" & fig.1 is described on p.9 as being a "polymer macromolecule", not the units of which the polymer was made.

Also see new independent claims 20 & 21 for problems as noted in 16 above.

In the claim 16 preamble, it is noted that in lines 1-4 "for...an optical compensation layer (OLC) composed of a monomer...thereof" is an intended use that is never necessitated, since while "...a monomer material and/or prepolymer material" (lines 2-3) are the materials that are singly employed options in the body of the claim, they need not be used in the "optical compensation layer" of the preamble, as it is not necessarily made by the body of the claim, so it is not commensurate in scope with the preamble. Note with respect to scope and claimed alternatives, the broadest claimed process still reads on pouring any monomer or prepolymer on any rigid substrate and fully curing (by any means) the layer so formed, such that the claimed shrinkage relationship is met, especially as no deformation need necessarily occur (what ever its occurring in), so it only needs to be "frozen-in" if it happens to be induced.

In new independent claims 20 & 21, the new issue of "the mass ...and thus the thickness..." ambiguously ties the claimed steps to the preambles, i.e. if the process is used to make an OCL, then these thickness criteria must be applied, but there is still no necessity that the material layer formed, is used as on OCL or deposited on a LCL or however they as supposed to be associated, so they are not necessarily commensurate in scope with the preambles.

3). The disclosure is objected to because of the following informalities: On page 19, see "the said layer", which has redundant articles. Proof reading is recommended.

The examiner noted the use of double arrowheads around words or phases in the specification, such as on p.14. Was this intentional, or were quotation marks intended?

On p.21, what are "ordinary" and "extraordinary rays"? The examiner knows of no wavelength of light call that.

Appropriate correction is required.

4). Claims 16-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The phrase "deformation of macromolecules forming the monomer..." discussed above in section 2 appears to contain New Matter as written.

Also in claim 16, while use of "a monomer material or a prepolymer material" is found through out the specification, the examiner found NO support for the newly claimed combination of both, as now included in the claim 16 preamble by "and/or".

Applicant cited p.19 for support of the new issues in claim 20, but while the examiner found support for the formula for optical thickness of a layer = (birefringence x [physical] thickness of a layer), no teaching requiring the optical thickness of the OCL = that of the LCL was found. Teachings on p.19-20 required other layers, some apparently with negative values, to be included in the sum to arrive at equality, but with no teaching of direct equality. Similarly p.21 did not clearly provide support for the "smaller than" limitation for optical thickness of OCL compared to LCL. The only the difference in the optical paths of "ordinary" and "extraordinary rays" of OCL compared to LCL were described as "smaller than".

5). The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6). Claims 16 and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanto et al (5,998,556), as discussed in section 5 of the action mailed 2/17/05.

As neither use as OCL's or with liquid crystal (LC) devices, nor deformation is yet positively required in these claims, Kanto et al still reads on the broader possibilities claimed. Note claim 17, which is similar to canceled claim 11 is not included as reheating to the glass transition temperature (T_g) is now positively required.

7). The rejection over Arakawa (5,528,400) is over come by the amended requirement in all independent claims of using an elevated temperature < T_g. Although, Arakawa remains relevant for

teaching making an optical compensatory sheet comprising at least 2 films, one having an optical axis normal (i.e. perpendicular) to the film, where deposition techniques include cast coating (reads on pouring) a polymer solution and treating via roller to effect shearing stress, which would inherently effect a smaller strain in the perpendicular direction than those in the plane of the layer, since the act of pressing will relieve the strain in that direction, as discussed in section 6 of the action mailed 2/17/05.

8). Claims 16 & 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by General Aniline film Corp. (GB 758,136) with Tada et al (4,259,407) as a teaching reference, as discussed in section 7 of the action mailed 2/17/05.

The British patent teaches production of polymeric sheets by pouring methyl α-chloroacrylate (or various esters listed on p.4, lines 41-55) between two sheets held apart by spacers, partially curing to gel the polymer, removing the spacers, then completing the cure. Note that gelling is considered equivalent to curing to a first level of viscosity that does not leak. The curing means may be by UV and/or gentle heating. See the paragraph bridging p.3-4. An example employs 58°C. While what the glass transition temperature of polymerized methyl α-chloroacrylate is not given, it is believed to be considerably higher than the exemplary 58°C as evidenced by Tada et al (col. 2, lines 3-7), which teach that "poly (methyl α-chloroacrylate) has a high glass transition temperature and good heat resistance...", since in general 58°C would not be considered high, but instead low.

Note the replacement of hard & soft with deformable & non-deformable remains covered by Aniline film Corp. (GB), as they teach alternative use of flexible spaces or removal of spacers that are not, before significant shrinkage occurs (p.1, lines 30-36). Also the fusible spacers discussed on p.2-3, may also read on deformable ones & are designed to have no resistance to polymer shrinkage. On p.4, lines 56-86, Aniline film Corp. (GB) discusses useful curing conditions, gelling equivalent to applicants' 1st level viscosity & the need to avoid overheating. In the example on p.4-5, Aniline film Corp. (GB) gel at room temperature, then heat to 58°C in a bath that removes the spacers & allows the glass sheets to

contract to effect shrinkage as claimed. Thereafter, the cell with cured polymer therein is allowed to cool to 20°C and later heated in an oven to 122-126°C, producing a smooth polished surface on a transparent polymer sheet after removal from the casting cell.

9). Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over General Aniline film Corp. (GB 758,136) with Tada et al (4,259,407) as a teaching reference, as discussed above in section 7 of the action mailed 2/17/05, and further in view of Arakawa (5,528,400).

Aniline film Corp. (GB) does not mention birefringence properties or use as an OCL, however in their example that final higher heating step, after the shrinkage step would have been expected to optimize polymer properties, but lacking exact knowledge of T_g, which the PTO cannot measure, whether or not it will inherently effect the results of applicants claim 17 can not be determined. On the other hand, Arakawa teaches use of a wide variety of polymers in OCL sheets, which are inclusive of poly methyl methacrylate, chlorinated polyolefins, polyesters, polyvinyl alcohol, etc. (col.9, lines1-33+) which overlap with those of General Aniline film Corp, discuss inherent birefringence in axially stretched polymers (col.21, lines 14-30), discuss cast coating those polymers (Ex.'s) with heating to relax orientation & appear to indicate that use of temperature around the T_g is needed to optimize the degrees of inclination in the "squeezed" film (col.15-16), hence it would have been obvious to one of ordinary skill in the art that as the General Aniline film Corp. teachings, which are reasonably consistent with Arakawa's cast/"squeezed" films, to employ them for producing OCL's for LC's, using routine experimentation bases on the T_g to optimize the required birefringence in the last exemplified step, as the General Aniline film Corp. polymer sheets appear to have required characteristic due to the shrinkage/squeezing in its formation & employ useable polymers as suggested by Arakawa's list of polymers.

10). Applicant's arguments filed 8/12/2005 & discussed above have been fully considered but they are not persuasive.

11). Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12). Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP 10/28&29/2005

MARIANNE PADGETT
PRIMARY EXAMINER